ABSTRACT

A simple, economic wet chemical procedure is described for making sol-gel fibers. The sol-gel fibers made from this process are transparent to ultraviolet, visible and near infrared light. Light can be guided in these fibers by using an organic polymer as a fiber cladding. Alternatively, air can be used as a low refractive index medium. The sol-gel fibers have a micro pore structure which allows molecules to diffuse into the fiber core from the surrounding environment. Chemical and biochemical reagents can be doped into the fiber core. The sol-gel fiber can be used as a transducer for constructing an optical fiber sensor. The optical fiber sensor having an active sol-gel fiber core is more sensitive than conventional evanescent wave absorption based optical fiber sensors.